

REMARKS

This Amendment responds to the Office Action mailed December 24, 2008. Claims 1, 3-12, 14, 15, 17-20 and 28-34 are currently pending. Independent claims 1 and 15 have been amended to clarify a distinguishing feature by referring to a curved shape in cross section perpendicular to a longitudinal direction, support for which may be found at least in Figure 9 and paragraphs 0047 and 0048 of the published application, for example. Claims 31 and 32, which recited “a” longitudinal direction have been amended to now recite “the” longitudinal direction for conformity with claims 1 and 15. New claims 33 and 34 have been added to round out the claim scope, support for which may be found at least in Figure 9 of the present application, for example. Reconsideration is respectfully requested.

Request for Personal Interview

A diligent effort has been made to place this application in condition for allowance. Should the Examiner believe that this application is not in condition for allowance, the Examiner is respectfully requested to contact the undersigned at the number below before issuing a further action to discuss any issues that may remain.

Art Rejections

Claims 1 and 31 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by “Knudson.” Office Action at p. 2. The Office Action does not identify the patent number for “Knudson,” but Examiner Chapman clarified during a telephone call on January 15, 2009 that the reference is U.S. Patent No. 4,505,084 (hereinafter “Knudson”). Claims 1, 3-12, 18, 19, 29-30 and 32 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Knudson in view of U.S. Patent No. 4,358,916 (hereinafter “Lacasse”) as best understood. Office Action at p. 3.¹ Claims 14, 15, 17, 20 and 28 stand rejected as being allegedly unpatentable over Knudson in view of U.S. Patent No. 4,579,785 (“Karoubas”) and further in view of Lacasse as best understood. Office Action at p. 4.² Independent claims 1 and 15 have been amended to clarify a distinguishing feature, and Applicants respectfully submit that the pending claims are neither anticipated nor obvious in view of the applied references.

¹ The Office Action purports to reject claims 1, 3-12, 14-15, 17-20, 28-30 and 32 as unpatentable over Knudson in view of Lacasse at p. 3 of the Office Action, but then invokes Karoubas (understood to mean U.S. Patent No. 4,579,785) at p. 4 of the Office Action to reject claims 14-15, 17, 20 and 28.

² *Id.*

Claims 1 and 31 are not anticipated by Knudson at least because Knudson does not disclose a panel with curved central portion that has a curved shape in cross section

Independent claim 1 has been amended to highlight a distinguishing feature, namely that the curved central portion has a *curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel. The building panel of claim 1 as amended thus comprises: (a) a curved central portion *having a curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel, *the curved central portion* having transverse corrugations therein; (b) a pair of side wall portions extending from opposite ends of said curved central portion *in cross section*, said curved central portion being concave-shaped *in cross section* from a perspective between said side wall portions, wherein said sidewall portions comprise straight portions that extend tangentially *in cross section* from the concave-shaped curved central portion; and (c) a pair of complementary wing portions extending from said side wall portions. Claim 15, which recites a building structure comprising a plurality of such panels, has been similarly amended.

In rejecting claim 1, the Office alleged that the building panel shown in Figure 13 of Knudson has a curved central portion, stating “the building panel is curved in a longitudinal direction as shown in figure 13.” Office Action at p. 2. Claim 1 has been amended to clarify that the curved central portion of the building panel recited in claim 1 has a *curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel. Thus, while Knudson may disclose a building panel that is curved in the longitudinal (lengthwise) direction, Knudson does not disclose a building panel a *curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel, as discussed further below.

To illustrate differences between the building panel shown in Figure 13 of Knudson and that required by claim 1, a non-limiting example of a building panel according to the present application is shown in cross section Figure 9 reproduced below. Figure 13 of Knudson cited by the Office (perspective view of Knudson’s panel) and Figure 3 of Knudson (cross sectional view of Knudson’s panel) are also reproduced below for comparison.

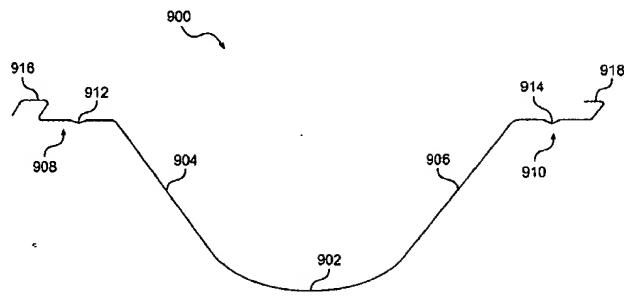


FIG. 9

**Fig. 9 of Present Application Showing Exemplary Panel in Cross Section
(Longitudinal Direction is Out of Plane of Paper)**

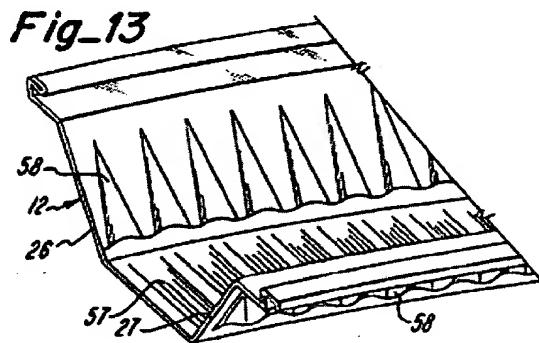
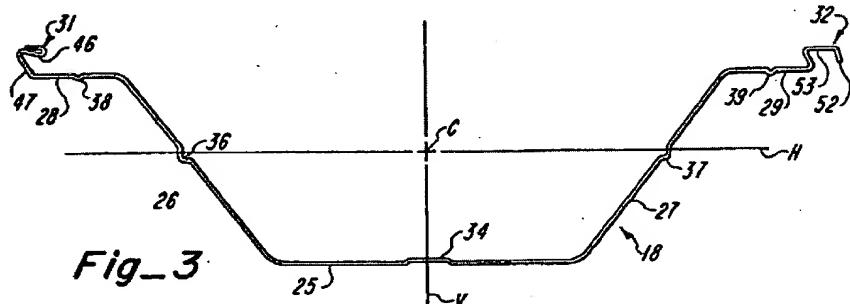


Fig. 13 of Knudson (US 4,505,084) Showing Panel in Perspective View



**Fig. 3 of Knudson (US 4,505,084) Showing Panel in Cross Section
(Longitudinal Direction is Out of Plane of Paper)**

Claim 1 requires, among other things, 1) a curved central portion that has a *curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel, and 2) sidewall portions that comprise straight portions that extend tangentially in

cross section from the concave-shaped curved central portion. Figure 9 of the present application illustrates a non-limiting example wherein side wall portions 904 and 906 comprise straight portions that extend tangentially in cross section from the concaved shaped curved central portion 902. In contrast, the panel of Figure 13 of Knudson (also shown in cross section in Figure 3 of Knudson) comprises a straight central portion 25 that is not curved *in cross section* perpendicular to a longitudinal direction along a length of the building pane. The sidewall portions 26 and 27 of Figures 3 and 13 of Knudson do not extend tangentially in cross section from a concave-shaped curved central portion. Accordingly, claim 1 cannot be anticipated by Knudson for at least this reason. Claim 31 is allowable at least by virtue of dependency.

The obviousness rejection of independent claims 1 and 15 is facially improper because of internal inconsistencies, failure to identify what is supposedly being modified, and failure to identify a reason for a modification

The rejection of independent claims 1 and 15, and dependent claims 3-12, 14, 17-20, 28-30 and 32, is facially improper because of internal inconsistencies and failure to identify what is supposedly being modified and why. The rejection therefore fails to set out a proper *prima facie* case of obviousness and must be withdrawn. Among the deficiencies are the following:

- 1) The rejection at page 3 of the Office Action purports to utilize Knudson as a primary reference and Lacasse as a secondary reference, but then attempts to map all of the claimed features against Figure 9 of Lacasse. The rejection is thus internally inconsistent and unclear as to whether anticipation or obviousness is being alleged.
- 2) The rejections detailed against independent claims 1 and 15 contain *no statement* about what aspect of Lacasse is supposedly being used to modify Knudson (or vice versa, if Lacasse is the primary reference) and *no reason* for the hypothetical combination. Rather, it is not until the discussion of *claim 3* (Office Action at p. 3) and *claim 17* (Office Action at p. 5) that the Office even alleges that Knudson should be modified to include an “arc” central portion of Lacasse.
- 3) The Office Action purports to reject claims 1, 3-12, 14-15, 17-20, 28-30 and 32 in view of Knudson and Lacasse at p. 3 of the Office Action, but then invokes Karoubas

(understood to mean U.S. Patent No. 4,579,785) at p. 4 of the Office Action to reject claims 14-15, 17, 20 and 28.³

4) With regard to rejection detailed against claim 15, the Office Action at page 4 purports to reject the claim in view of Knudson and Karoubas (and does not even invoke Lacasse against claim 15), and then attempts to map all of the claimed features against Knudson. The rejection is thus internally inconsistent and unclear as to whether anticipation or obviousness is being alleged.

In sum, it is not clear which reference is the primary reference and what is hypothetically being modified or why. In addition, given the way that Lacasse seems to be applied against claim 1 and the way Knudson seems to be applied against claim 15, it is not clear whether anticipation or obviousness is being alleged.

Further, it is respectfully submitted that, should the Office issue a further Office Action rejecting these claims, it would be plainly improper to make that Office Action "final" in view of the above-noted deficiencies.

Independent claims 1 and 15 are not obvious in view of the applied references, none of which disclose or suggest a building panel with transverse corrugations in a curved central portion that has a curved shape in cross section perpendicular to a longitudinal direction

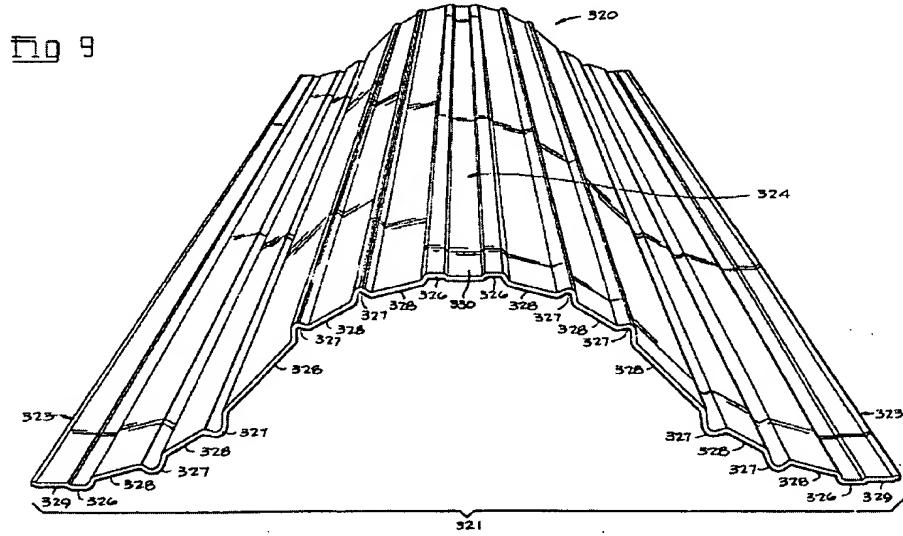
The rejection set forth at page 2 of the Office Action purports to be an obviousness rejection based on Knudson as a primary reference and Lacasse as a secondary reference. As noted above, it is not clear whether Knudson or Lacasse is being used as the primary reference. In any event, claims 1 and 15 are not obvious regardless of which reference is used as the primary reference.

Claims 1 and 15 are not obvious in view of the applied references if Lacasse is being used as the primary reference. The Office Action at page 3 purports to reject claims 1 and 15 as unpatentable over Knudson in view of Lacasse, and then cites Figure 9 of Lacasse for purportedly disclosing all of the claimed features. The Office Action alleges: that portion 330 of Lacasse is a curved central portion, that the alleged "curved central portion" has transverse corrugations therein, that features 328 correspond to the claimed pair of side wall portions, that features 329 correspond to the claimed pair of complementary wing portions, and that the remaining requirements of the claim are met by Figure 9 of Lacasse. The Office

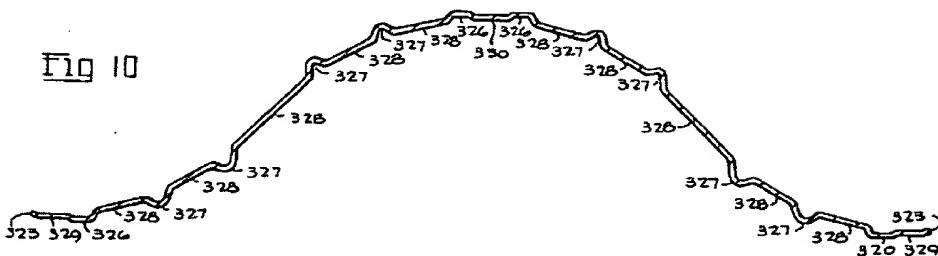
³ While it is presumed that the Office is referring to US Patent No. 4,579,785, clarification of this understanding is required.

Action at pages 2-3 is silent about any hypothetical modification to Lacasse (or Knudson) insofar as the independent claims are concerned. Applicants disagree with the Office's assertions and submit that independent claims 1 and 15 are patentable over the applied references at least for reasons discussed below.

As noted above, claims 1 and 15 require, among other things, 1) a curved central portion that has a *curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel, and 2) sidewall portions that comprise straight portions that extend tangentially *in cross section* from the concave-shaped curved central portion. Contrary to the Office's allegations, it is clear from Figures 9 and 10 of Lacasse (shown below) that the panel of Lacasse does not have *transverse* corrugations therein, as required by independent claims 1 and 15. As shown in Figure 9 of Lacasse reproduced below, contrary to the Examiner's assertion, Lacasse clearly discloses only longitudinal corrugations extending along the length of Lacasse's panel. The longitudinal direction of Lacasse's panel is out of the plane of the paper, and the cross sectional direction of Lacasse's panel is in the plane of the paper. This is evident since Lacasse explicitly refers to Figure 10 (which shows the shape of the Figure 9 panel in the plane of the paper) as "a transverse cross-section." See Lacasse at col. 6, lines 16-17.



**Fig. 9 of Lacasse
(Longitudinal Direction is Out of Plane of Paper)**



**Fig. 10 of Lacasse
(Longitudinal Direction is Out of Plane of Paper)**

Moreover, the present application treats the “cross section” terminology in the same way that Lacasse treats it. In particular, regarding Figure 9 of the present application reproduced above, the present application states that “FIG. 9 is a cross section view of one embodiment of a building panel . . .” Paragraph 0033 of the published application. Thus, it is abundantly clear that the panels disclosed in Lacasse do not have transverse corrugations therein.

In addition, the Office Action makes no allegation whatsoever for hypothetically modifying Lacasse’s panel to have transverse corrugations. Indeed, such an allegation would be contrary to the teachings of record. In particular, U.S. Patent No. 3,009,509 (“Martin”) of record contains an express teaching away from transverse corrugations in a curved central portion as described in Applicants’ Amendment dated October 9, 2007 at pages 5-6 and as further discussed herein below.

Accordingly, it is plainly evident that the applied references, using Lacasse as the primary reference, do not render independent claims 1 and 15 obvious.

Moreover, Applicants disagree with the Office’s assessment of Lacasse. Contrary to the Office’s suggestion, portion 330 shown in Lacasse’s Figure 9 is not curved, but is instead straight, as is plainly evident from Figure 9 itself. Further, portions 329 do not “extend tangentially *in cross section* from the concave-shaped curved central portion” as required by the independent claims. Thus, the Office’s obviousness rejection, assuming Lacasse is used as the primary reference, is further flawed for these additional reasons.

In addition to failing to render claims 1 and 15 obvious, it is apparent from the discussion above that Lacasse also does not anticipate claims 1 and 15.

In addition, claims 1 and 15 are not obvious in view of the applied references if Knudson is being used as the primary reference. Under the broad allegation of rejecting the pending claims as unpatentable over Knudson in view of Lacasse, pages 4-5 of the Office

Action contain allegations regarding Knudson in rejecting claims 14, 15, 17, 20, and 28 for obviousness. However, even if Knudson is being used as a primary reference in this regard, the rejection is still fatally flawed because the Office has made no statement as to what aspect of Knudson would be hypothetically modified in light of Lacasse. The Office Action has made no statements suggesting a modification to the straight central portion 25 of Knudson's panel, other than perhaps indirectly in connection with dependent claim 3 (and similarly for dependent claim 17). Accordingly, the rejection of independent claims 1 and 15 is facially flawed.

In addition, even the Office's rejection of dependent claim 3 (and claim 17), which alleges a modification of Knudson in light of Lacasse, is itself flawed. With regard to claim 3, the Office Action states, "Lacasse discloses wherein said curved central portion comprises an arc. [I]t would have been obvious to modify Knudson to include the arc central portion to construct a central portion that is easier and more common to fashion." Office Action at p. 3. This rejection is flawed at least because it is unspecific and presents assertions with no evidentiary basis. With regard to "easier" to fashion, easier than what? With regard to "more common" to fashion, more common than what? In addition, the Office's proffered reason – to construct a central portion that is easier and more common to fashion – is made without any evidentiary basis whatsoever. The Office Action cites no evidence whatsoever for these propositions. In short, even the meager reasons offered in the Office Action for hypothetically modifying Knudson in connection with dependent claims 3 and 17 are facially insufficient.

To add to the confusion, the Office Action at pages 4-5, in rejecting independent claim 15, purports to rely on U.S. Patent No. 4,579,785 ("Karoubas"), where only Knudson and Lacasse were previously alleged as applied references. The rejection detailed at pages 4-5 of the Office Action, which again purports to be a rejection based upon Knudson in view of Lacasse, is utterly silent with regard to Lacasse as applied to any independent claim (it is not until addressing dependent claims 17 that the Office Action makes an allegation with regard to Lacasse, as discussed above). Thus, the rejection is facially flawed for at least this reason.

In addition, the Office's reliance on Karoubas is itself flawed because it offers a feature from Karoubas that the rejection contends Knudson already possesses, namely, transverse corrugations. Pages 4-5 of the Office Action states, "Knudson discloses a building panel comprising: (a) a curved central portion 25 having a transverse corrugation therein; Karoubas discloses corrugations extending in both directions transverse and coextensive;

ones reference point determines the transverse and coextensive direction. It would have been obvious to include one, either or both directions for the corrugations in order to improve stiffening or buckling of the building panel.” On its face, this rejection purports to cast Knudson as an anticipatory reference, which it is not for reasons already explained in detail above.⁴ The Office Action then fails to suggest a modification to Knudson based on Karoubas. In particular, the Office’s statement that the corrugations of Knudson can extend in either direction based upon one’s reference point is not modification, particularly where the Office has alleged that Knudson already discloses transverse corrugations. In addition, the Office’s comment regarding reference point, even if true, is moot because independent claims 1 and 15 have been amended to clarify that the recited shape of the claimed building panel is that in *cross section* perpendicular to a longitudinal direction along the length of the building panel. The claims thus explicitly distinguish “longitudinal” (lengthwise, or what the Office calls coextensive) and “transverse” (crosswise) by virtue of reciting them in connection with structural features.

Moreover, Karoubas cannot make up for the deficiencies of Knudson. Karoubas does not disclose transverse corrugations in a *curved central portion* of a panel having a curved central portion with a curved shape in cross section perpendicular to a longitudinal direction along a length of the building panel. Rather, Karoubas discloses corrugated metal decking having interconnecting webs 14 containing embossments 16 therein and having a rib 13 in an otherwise *straight center portion* 12. See Karoubas Figure 1 (reproduced below) and col. 3, lines 5-25. The rib 13 is arranged longitudinally along the length of the panel, and the embossments 16, which the Office evidently alleges correspond to the transverse corrugations, are not formed in the central portion 12, but, rather, are formed in what the present application would consider side wall portions. Thus, there is no teaching in Karoubas of transverse corrugations in a *curved central portion* of a panel having a curved central portion with a curved shape in cross section perpendicular to a longitudinal direction along a length of the building panel. For at least these reasons, Karoubas could not make up for the deficiencies of Knudson.

⁴ As discussed previously herein, and as shown in Figures 3 and 13 of Knudson reproduced herein above, Knudson does not disclose 1) a curved central portion that has a *curved shape in cross section* perpendicular to a longitudinal direction along a length of the building panel, and 2) sidewall portions that comprise straight portions that extend tangentially *in cross section* from the concave-shaped curved central portion.

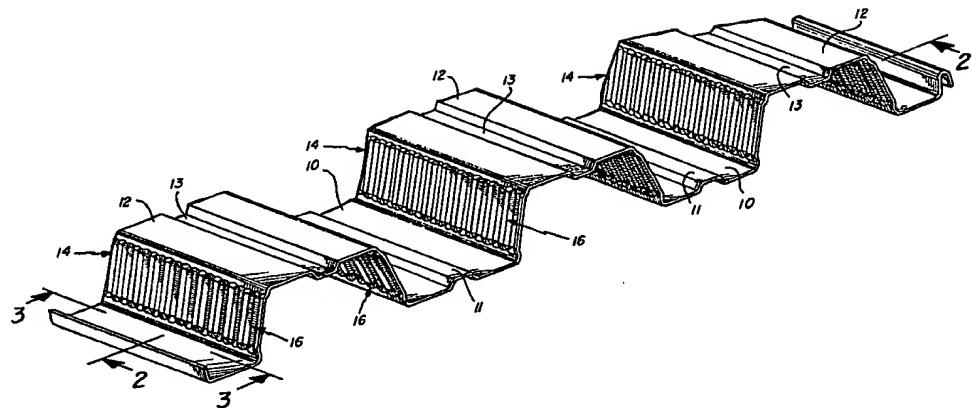


Fig. 1 of Karoubas

Accordingly, regardless of whether Lacasse or Knudson is treated as a primary reference, it is readily apparent that the applied references, either singly or in combination, do not teach a building panel with 1) a curved central portion that has a *curved shape in cross section* wherein the curved central portion has transverse corrugations therein and 2) sidewall portions that comprise straight portions that extend tangentially *in cross section* from the concave-shaped curved central portion. Thus, even if hypothetically combined as suggested by the Office, the applied references would not yield a building panel (or building structure comprising such panels) as claimed.

In addition, based on the comments above, it is further apparent that neither Lacasse, nor Knudson, nor Karoubas can anticipate independent claims 1 and 15.

Withdrawal of the rejection and allowance of independent claims 1 and 15 are respectfully requested for at least these reasons. Claims 3-12, 14, 17-20, 28-30 and 32 are allowable at least by virtue of dependency.

The present obviousness rejections improperly ignore art that strongly “teaches away” from using transverse corrugations in a curved central portion

The present rejections also ignore art that teaches away from the claimed subject matter – art that the Office has previously considered anticipatory but now does not – and in doing so, the rejections improperly ignore subject matter that supports the patentability of the present claims. MPEP 2143.01(II) states:

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art,

and *all teachings in the prior art must be considered to the extent that they are in analogous arts.* MPEP 2143.01(II), p. 2100-139, Rev. 6, Sept. 2007 (emphasis added).

In this present rejection, the Office is clearly not considering “all” the teachings in the prior art and what the combined teachings would have suggested to one skilled in the art.

Prior to Applicants’ recent amendments that recited that the curved central portion had transverse corrugations therein, the Office had rejected the claims as allegedly anticipated by U.S. Patent No. 3,009,509 (“Martin”). However, Martin contains an express teaching away from transverse corrugations in a curved central portion as described in Applicants’ Amendment dated October 9, 2007 at pages 5-6. For purposes of illustration, Figures 5 and 8 of Martin are shown below. Martin is not now being applied in the present rejection. Nonetheless, Martin is pertinent because the Office previously considered it an anticipatory reference, and now, after being shown that the claimed subject matter is distinct at least because Martin teaches away from doing what is claimed, the Office seeks to ignore it -- contrary to the instructions noted in the MPEP as set forth above.

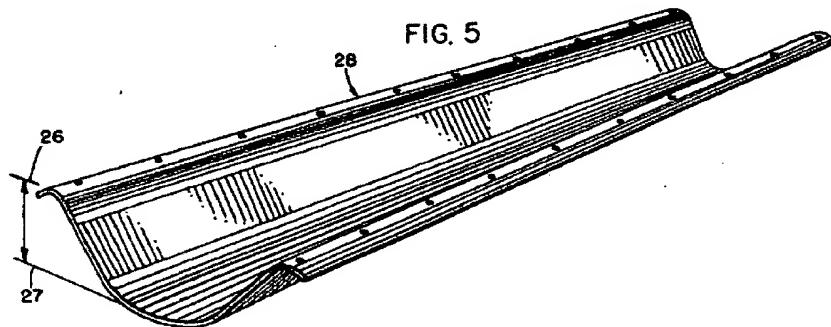


FIG. 5

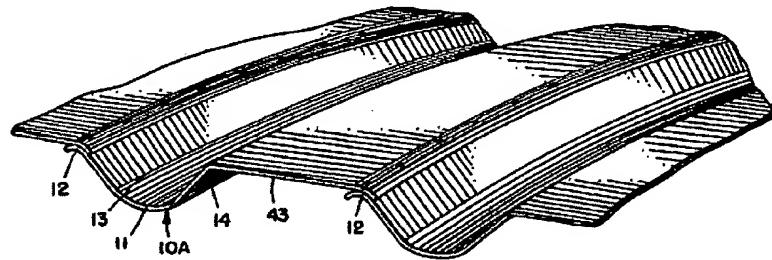


FIG. 8

Figs. 5 and 8 of Karoubas

In response to the prior rejection based on Martin, Applicants amended the claims to recite that the curved central portion included corrugations therein, and highlighted portions of Martin’s disclosure that teach away from using transverse corrugations as now claimed:

Heretofore, many panels of this type and configuration have been developed, but in nearly all cases transverse corrugations or the like have been formed in the panel in order to form the longitudinal arch in the panel. *It has been found that these cross or transverse corrugations weaken the panels.* (Martin, col. 1, lines 23-28, emphasis added.)

Still another object of this invention is in the provision of a generally trough-shaped and longitudinally arched structural panel, wherein the longitudinal arching may be accomplished *without resorting to cross corrugations thereby giving a more durable and stronger panel.* (Martin, col. 1, lines 36-40, emphasis added.)

A still further object of this invention is in the provision of a method of making a generally trough-shaped and longitudinally arched structural panel having smooth inner and outer surfaces wherein the arching of the panel is accomplished *without forming any cross corrugations therein thereby providing a stronger and more rigid panel.* (Martin, col. 1, lines 44-50, emphasis added.)

In other words, Martin discloses that transverse corrugations weaken the panel, and the Office seeks to ignore this disclosure, contrary to the MPEP's direction. The Office is now silent on Martin and looks to art disclosing straight central portions that is on it's face less relevant than Martin. It is believed that the Office's approach in this regard is improper, and that the rejection of claims 1 and 15 should be withdrawn for at least these additional reasons.

The Office is reminded that, as part of the consideration of obviousness, "a prior art reference that 'teaches away' from the claimed invention is a significant factor in determining obviousness" and that "the nature of the teaching is highly relevant and must be weighed in substance." MPEP § 2145(X)(D)(1) (internal quotations omitted). However, instead of considering and weighing the express teaching of Martin in issuing the instant rejection, the Office has now entirely discarded Martin without explanation. Martin's teaching away from the claimed subject matter and the failure of Knudson, Lacasse and Karoubas to yield the claimed subject matter are significant evidence of non-obviousness. The rejections should be withdrawn for at least these additional reasons, and the pending claims should be allowed.

New Claims 33 and 34

New claims 33 and 34 have been added and recite that the curved central portion is curved in cross section over an entire width of the curved central portion. Support may be found at Figure 9 of the present published application. These claims are patentable at least by

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virtue of their dependency from claims 1 and 15. Moreover, these claims are further distinguishable over art cited by the Office disclosing panels with straight central portions.

Conclusion

In light of the above amendments and remarks, reconsideration and allowance of this application are respectfully requested.

Date: March 24, 2009

Respectfully submitted,

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